

CLAIMS

We claim:

1. A method of expressing proteins comprising the steps of
 - (a) placing a DNA sequence encoding a protein or peptide in an expression vector comprising a regulatable promoter expressible in *Rhodospirillum rubrum*, and
 - (b) expressing the protein within a bacterial host, wherein the host has extra capacity for membrane formation and wherein the host is a member of the genus *Rhodospirillum*.
2. The method of claim 1 wherein the protein or peptide is a membrane protein or peptide.
3. The method of claim 1 wherein the protein or peptide is a heterologous protein or peptide.
4. The method of claim 2 wherein the protein is a heterologous protein.
5. The method of claim 1 wherein the host is *Rhodospirillum rubrum*.

6. The method of claim 5 wherein the host is defective in the production of *puhA*-encoded RC-H.
7. The method of claim 6 wherein the host is *Rhodospirillum rubrum* H15.
8. The method of claim 1 wherein the host is defective in *puhA*-encoded RC-H and *puf*-encoded LH- α , LH- β , RC-L and RC-M.
9. The method of claim 8 wherein the host is *Rhodospirillum rubrum* H1.
10. The method of claim 1 wherein the host is a *puf* knock-out mutant.
11. The method of claim 10 wherein the host is *Rhodospirillum rubrum* P5 or *Rhodospirillum rubrum* P4.
12. The method of claim 1 wherein the expression vector comprises a promoter that can be induced by reduction of oxygen tension.

13. A protein expression system comprising:
a vector comprising a DNA molecule encoding a protein or peptide in an expression vector comprising a regulatable promoter expressible in *R. rubrum*, wherein the vector is contained within a host of the genus *Rhodospirillum* and wherein the host has extra capacity for membrane formation.
14. The protein expression system of claim 13 wherein the protein or peptide is a heterologous protein or peptide.
15. The protein expression system of claim 13 wherein the protein or peptide is a membrane protein or peptide.
16. The protein expression system of claim 14 wherein the protein or peptide is a membrane protein or peptide.
17. The protein expression system of claim 13 wherein the host is *Rhodospirillum rubrum* H15.
18. The protein expression system of claim 13 wherein the host is defective in the production of *puhA*-encoded RCH-H.

19. The protein expression system of claim 13 wherein the host is *R. rubrum*.

20. The protein expression system of claim 19 wherein the host is defective in the *pufA*-encoded RCH-H and *puf*-encoded LH- α , LH- β , RC-L and RC-M.

21. The protein expression system of claim 13 wherein the host is *Rhodospirillum rubrum* H1.

22. The protein expression system of claim 1 wherein the host is a *puf* knock-out mutant.